Torpédoplanes Likely to Thrust Naval Craft Into Background

Foreign Recognition of American Invention and Civilian Enterprise at Home at Last Spur Our Navy Into Adopting Latest and Most Formidable Weapon.

"WHY is England so willing to reveal all details of her wonder ship, the battle cruiser-dreadnought Hood?" This query is often heard among persons who follow the evolution of naval material. And the belief is growing that the British are developing other offensive agencies likely to modify radically the military value of all armored battle giants as we know them. Hence there is no particular reason why the Hood should be surrounded with secrecy.

It is common knowledge among naval experts that aviation for sea service reached a point about the time of the armistice which portended momentous things in attack and defence. Not only were large fighting ships equipped to send aloft scouting airplanes but special vessels were outfitted to serve as oceangoing bases for nautical aircraft. Plans were already drawn for swift ships capable of "mothering" a squadron or more of torpedoplanes.

First Recognized Abroad.

It was largely the foreign recognition of an American invention that finally aroused our own Navy Department to a show of incipient regard for the torpedoplane which Rear Admiral Bradley A. Fiske had devised in 1912. As he said three years later, "Be a bit quicker than your enemy. Surprise him if you can; anticipate him by producing a weapon or an offensive instrumentality with which he is unprepared to cope, and then drive your advantage home." It was with this idea that Admiral Fiske conceived his torpedo carrying aircraft.

Washington officials in charge of naval aviation could see no good in the torpedoplane. But we know now that the Germans were not unmindful of its potentialities, and as early as May, 1917, brought out a seaplane of this general character. Then it was that a British steamship was sunk in the North Sea, off Aldeburgh, by means of a torpedo launched from a German flying machine. In fact, the British were really the first to profit by Admiral Fiske's invention; for in August, 1915, pilots of the Royal Naval Air Service were thus enabled to sink a number of enemy vessels in the Dardanelles. Torpedoes so brought within reach of their targets accomplished results that the airmen were unable to effect through the agencies of bombs.

Where the Germans Failed.

The Germans used torpedoplanes in the defence of Ostend and Zeebrugge, but those experiments were not unqualifiedly successful. The Germans were handicapped by employing seaplanes driven by single motors which were not powerful enough to carry the extra weight and make at the same time a suitable speed. Their flying velocities were so reduced the British found it rather easy to establish a "water barrage" with rapid fire guns across the line of approach. With machines of greater speed the Germans should have experienced comparatively little trouble in outflanking the British defence and thus swooping down upon the patrolling destroyers.

And now we shall see that this form of aerial attack in its potentialities makes ships like the Hood and other steel clad naval giants fairly easy prey for the squadrons of the air. The seaplane, when flying close to the water, presents an indistinct and difficult target even when light conditions favor the man behind the gun. And after nightfall the odds are much in favor of the flying machine getting within torpedoing range. This has been established by recent manœuvres in British waters.

The Admiralty decided to settle by practical tests some of the moot questions between the Royal Air Force and the battle fleet. The airmen boasted they could put the sea squadrons hors de combat at will, and the naval men averred they could take care of themselves with their anti-aircraft guns. The sham battle that followed was a revelation, for the airmen so managed their whirlwind assault that the umpires had no hesitancy in declaring sunk seven out of a force of nine big armored ships. These vessels typified the latest designs of capital craft.

Less than three years ago, despairing of Government action, the Aero Club of America set about blazing the way for development of the torpedoplane for national defence, and some of our civilian technicists subscribed their aid. Further, Godfrey L. Cabot of Boston joined in this work and pledged financial support. The first step was to produce an automobile torpedo of exceptionally light weight. This was imposed upon the committee organized through the enterprise of the Aero Club of America by reason of the scarcity of men here familiar with big seaplanes. By using small seaplanes and small torpedoes it was thought we could quickest recruit an air force commensurate with the emergency then existing.

With the expert assistance of Frank M. Leavitt a torpedo weighing about 200 pounds was designed. This weapon would have had a range of 1,000 yards and a speed of twenty-five knots an hour. The regulation 21-inch torpedo weighs 2,000 pounds, has a length of seventeen and a half feet, an average speed of twenty-eight knots an hour and is effective up to 10,000 yards. Its work in the direction of the relatively miniature instrument was halted by the coming to this country of the great Caproni flying machines in 1918, which demonstrated the availability of craft large enough to transport full size naval torpedoes.

The arrival of the different Capronis, the building of our own great seaplanes of the NC type and the gradual awakening of the Navy Department to the importance of the Fiske invention made it clear that the torpedoplane was eminently practicable and emphasized the need of prompt steps in providing us with aircraft of this sort. The alert experts of our fighting fleet visualized immediately what would be our defensive and offensive gain if we possessed planes of this description, and they were equally keen in their appreciation of the tremendous handicap under which we would labor if we lacked this aerial arm, especially if the battle squadrons of other nations possessed them.

Need for Action Becomes Plain.

Both the naval airplane factory at Philadelphia and civilian producers took up the problem of putting us at least upon a par with Great Britain and other European nations. Recently the R-6, a navy torpedoplane, was tried out over and on the Delaware River. Her performances gave general satisfaction and showed that her designers had overcome certain defects. But probably the most spectacular results have been obtained by the Glenn L. Martin Company, which, early in May, put through its paces another new type of torpedoplane, which it has completed for the United States Navy. The machine was tested at Dayton, Ohio, in the presence of army and navy officials.

This particular craft, A-5713, represents a total deadweight of 11,910 pounds, including a useful load of nearly two and a half tons. Besides a crew of three men, the plane is equipped to carry a 1,650 pound torpedo, 450 pounds of bombs, two Lewis guns, a radio set, a complete outfit of instruments and accessories and sufficient fuel for a four hour flight. As the maximum flying speed is 107 miles an hour this means the A-5713 can cover 428 miles, or 480 miles at a lesser speed, on its store of gasolene. It also is able to mount from sea level to an altitude of 5,100 feet in ten minutes. Once 5,000 feet aloft the torpedoplane is reasonably safe from anti-aircraft fire directed from sea craft.

Torpedoes Versus Bombs.

During the latter months of the war anti-aircraft guns afloat were so inaccurate that bombing airplanes could go with impunity as low as 4,000 feet in attacking their targets in the daytime. After nightfall they safely could venture 2,000 feet lower. This gives some hint of the opportunities for scoring that are open to the torpedoplane. Even the layman will realize there is a vast difference between registering hits by dropping bombs and reaching the mark with a torpedo launched from a point of vantage and travelling through the water. Nor does the bomb go directly to the target's most vulnerable area—the under-water body below the belt of side armor.

It is conceivable that the advent of a thoroughly efficient torpedoplane means the early production of an automobile torpedo carrying a heavier mass of explosive than is the case with the torpedo of like external dimensions used by water borne craft. This increased potency will be effected by reducing the maximum range to 2,000 or 3,000 yards—a safe distance for a torpedoplane, although a torpedo boat could not expect to get that close before detection. Thus, the torpedoplane is, in a measure, to supplement the destroyer and to essay attack where the sea borne craft would have little if any chance of effective work.

The A-5713 type is planned to operate either with a fleet or from a shore station. It is not a seaplane, but in a way a modified military tractor. While not equipped with pontoons it is provided with a novel type of flotation bags. These can be quickly inflated by compressed air. It, therefore, can settle on land or water. The fully laden A-5713 can soar from the deck of a warship or from a sea sled. Attachments in the upper wings make it feasible to hoist her bodily clear of the water and back upon the deck of the mother craft.

Valuable for Coast Defense.

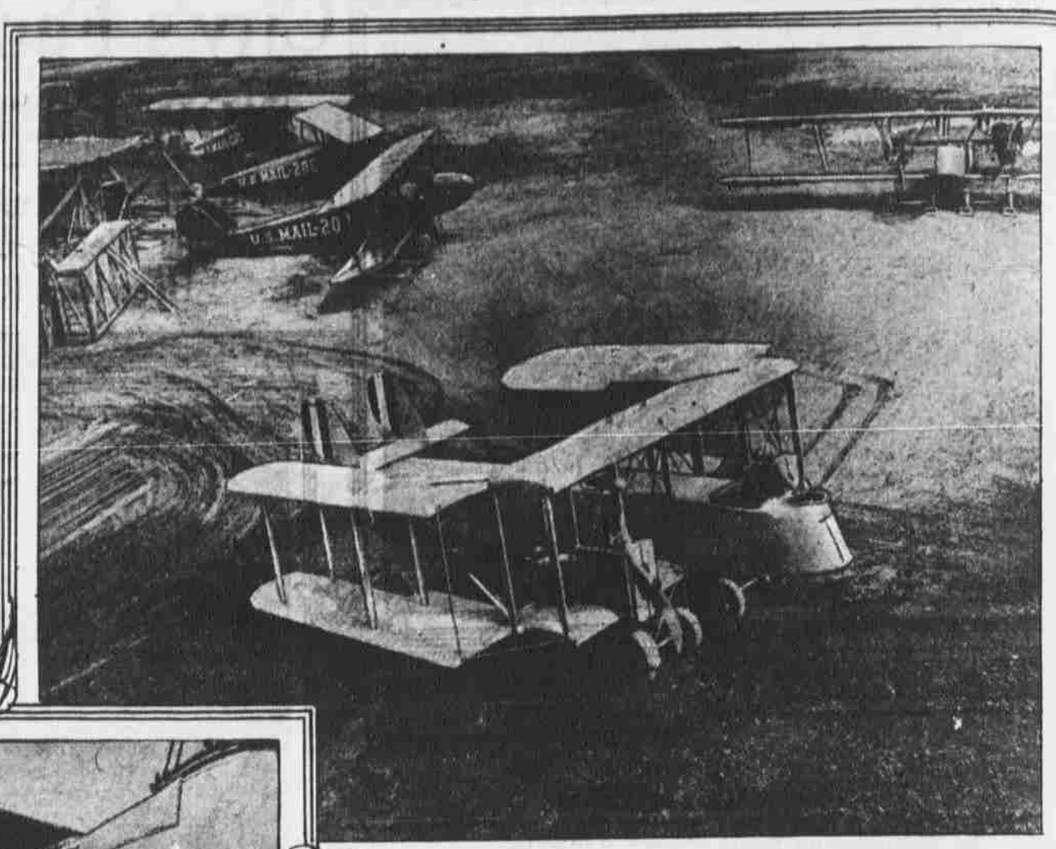
As a coast defence unit, the A-5713 tremendously amplifies the effectiveness of seaboard batteries. As explained by her builders: "The average coast defence gun has a range of about twenty-five miles, whereas the Martin navy torpedoplane can fly out to sea a distance of 200 miles, execute its mission, and, at the same time, keep the home station in constant communication regarding its operations. Should an engagement take place so far out to sea as to make the trip back to shore impossible, this plane can alight at sea by use of its flotation bags, and signal its home station or any nearby ship as to its location."

Twenty Martin torpedoplanes can be built for a sum equal to the cost of a single destroyer; and just about one-third the number of men would be needed to operate this score of aircraft. The seacoast gun is not likely to be effective beyond the range of visibility, even though spotting may be aided by observers in aircraft. On the other hand, the torpedoplane can reach its mark when its base is a couple of hundred miles or more rearward.

The Glenn L. Martin Company has brought to a present climax Admiral Fiske's invention, and this is probably scarcely more than the beginning of a new type of aerial fighting machine. Undoubtedly the next step will be to produce aircraft capable of carrying more than one torpedo. As a fact, the A-5713 is intended to transport a 2,100 pound torpedo instead of the 1,650 pound missile with which she is now fitted.

The A-5713 has folding wings which reduce the overall width of the plane to only 35 feet 10 inches, in this way simplifying the housing problem. Driving power is provided by two twelve cylinder Liberty motors, each of 400 horse power. The craft will be able to raise her full load to a height of 12,000 feet.

We have yet to construct oceangoing vessels especially suited to serve as mobile bases for torpedoplanes. Great Britain has them, and it is reasonable to believe that other navies will be able to boast of them before long.



TORPEDO CLOSE UNDER THE FUSELAGE, IS RELEASED BY A SIMPLE MOVEMENT OF THE PILOT

WINGS OF THE TORPEDO PLANE FOLD TO FACILITATE HOUSING

Depew's Memoirs of "Dark Horses"

Continued From Third Page.

when the certainty of McKinley's triumph was obvious. Tom Reed of Maine had many friends, but Mark Hanna's organization work had cut the ground from under the feet of the Czar of the House. The real fight was over free silver, and it culminated in one of the most dramatic episodes I ever witnessed, the sensational withdrawal from the convention of Senator Teller of Colorado, leader and spokesman for the Silver Republicans. Overwhelmingly defeated in his effort to saddle free silver upon the party, Teller marched out of the convention, followed by the silver cohorts, thirty or forty delegates.

It was in that year that the Democratic party fell into the arms of Mr. Bryan of Nebraska, who popped up out of nowhere in particular to inflame the Democrats with his "cross of gold and crown of thorns" speech and to hypnotize them with the magic of his oratory. Bryan made a remarkable campaign, travelling and speaking with tireless energy, attracting immense crowds. He was received with such evidences of enthusiasm that many persons feared the contest would be close, much too close for comfort. Yet the result was anything but close. It went to prove that the candidate who draws great crowds is not necessarily capturing votes. For Bryan did not carry a State east of the Mississippi, and he was not merely beaten at the polls, he was routed. The country was not ready to adopt a dishonorable monetary policy, and Major McKinley benefited from this solid national conception even more than he was advantaged by his own excellent record and splendid personal qualities.

Roosevelt Forced Into Vice-Presidency.

There was no opposition to Mr. McKinley in 1900. He had won the confidence of the country. The extraordinary episode of that convention was the nomination of Theodore Roosevelt as the candidate for Vice-President. The story has been frequently told and is still fresh. I take it, in the public mind. Col. Roosevelt was then Governor of New York and ardently desired reelection. He had not got on well with Senator Platt, and Platt had determined to relegate this troublesome young man to obscurity. He was assisted in this desire by the honest desire of Mark Hanna to have Col. Roosevelt on the ticket with President McKinley, and as it came about the honor was virtually forced upon Roosevelt. He protested strongly, even bitterly. He declined two or three times, stating frankly that he considered the Vice-Presidency merely a "pocket" for the retirement and extinction of ambitious men. I personally presided at the meeting of the New York delegates to consider his name, and at the first meeting or two he would have none of it. It was not until the eve of nomination that he changed his mind, consenting to run for the good of the party. By such accidents are great facts of history incubated.

We come now to such recent political history as requires little of the reminiscences of an elder observer. The renomination of Mr. Roosevelt in 1904 was a foregone conclusion, as was that of Mr. Taft, at Mr. Roosevelt's dictation, in 1908. I shall pass over the bitter controversy of 1912, which brought about a schism in the party and led to the easy victory of Mr. Wilson. There was right on both sides doubtless, and one may now assume that there was wrong on both sides. It seems a pity that such a quarrel could have been allowed to develop into the ruin of party hopes. Nothing is to be gained by digging into the animosities of that period.

The Present a "Dark Horse" Year.

In 1916 the nomination of Mr. Hughes was reasonably certain in the minds of the delegates before they gathered at Chicago, and so it came about. Like the memorable contest of 1884, two or three episodes, preventable possibly, brought about Mr. Hughes's defeat.

We stand now in the midst of one of the most interesting situations I have ever contemplated in my experience of sixty-four years. In our party there is no one overmastering, outstanding figure. There is no Grant, no Blaine, no McKinley, no Roosevelt. We have a diversity of excellent and able men, not one of whom seems likely to go to the convention with anything like a majority of the nearly 1,000 delegates. I am inclined to think it is a dark horse year. It may well be that the choice of the party will fall upon a man who has not even been mentioned or who may have been spoken of among numerous "possibilities." Perhaps that would be as well. It might go further than anything else toward correcting the rancors and antagonisms of the primaries.

I do not like the primary as a means of collecting delegates or of indicating the preferences of a State. They create bitter jealousies or antagonisms oftener than not. They are incredibly expensive and give rise to stories, true or false, of a too lavish expenditure of money. Often they act to the benefit of the minority party because the sore and disappointed adherents of sore and disappointed aspirants often carry strength to the minority party. In the end primaries settle nothing, prove nothing. The convention system is infinitely better. It is a form of candidate selection after full discussion by men that have been selected more honestly and democratically than under the primary system. For, after all, primaries are largely a matter of canvass, organization and money spending.

The Times Demand a Man!

I would not miss attending the Republican National Convention of 1920 for a great deal, and I take pride in the fact that once more I shall be a delegate under the banner of the Empire State. I expect to participate in a momentous council of the party, for as sure as we live the good sense and patriotism of that convention must be relied upon to save our country from grievous misery. Surely we can exercise the patience, the good feeling, the shrewd judgment and, above all, the love of country, which will be needed to solve the tremendous problems of platform and candidate. I believe we will. I believe we will be able to find a standard bearer to measure up to our great leaders of the past—Lincoln, the grandest of all; Harrison, one of the ablest of all our Presidents; Roosevelt, who stands with Lincoln; and the great hearted, courageous McKinley. No weakling must be chosen in these times. The times demand a man!

Sugar Prices Likely to Stay Up For Next Ten Years at Least

Continued From Fourth Page.

shortage would be almost as acute as it is now, with the demand around 4,300,000 tons and the supply less than 4,000,000 tons. The quantity of any product representing the difference between the available supply and the existing demand controls the price. If the supply can be increased by exactly the difference now existing between these two figures the shortage will be abolished and prices will immediately return to a more accurate figure, representing the cost of production plus a reasonable profit.

Effect of Speculation.

This means that if the United States could increase its production within the next three years by 500,000 tons, and would not increase its demand proportionately, we would have enough sugar to feed us properly and the high price era would be past. If, however, speculation is permitted to enter into the calculation and exports of sugar permitted to start once more, then the same troublesome difference between supply and demand will crop up again.

Even if only 100,000 tons are shipped abroad, and this 100,000 tons represents the sole difference between the supply in sight and the demand, then the price for the whole United States will be controlled by the price which this 100,000 tons can command in the competitive bidding of an open world market. That is to say, a prospective speculator or buyer in Europe could, under such circumstances, boost the price of all sugars in the country by bidding a high price for the 100,000 tons which he may be able to secure for export. If, however, all exporting is forbidden then there is a reasonable chance for an early adjustment of present sugar prices.

As far as the outlook for the near future is concerned, the writer sees no reason to change his attitude or opinion expressed many times during the past two years while editor of *Sugar*. As long as the world shortage exists bidding will maintain the Cuban price far above actual "cost and profit" figures. The United States lacks the legal right to commandeer the Cuban crop, and the sugar raised on United States territory, including insular possessions, is not sufficient to fill 50 per cent. of the actual demands of the people.

Attitude of the Canners.

It seems incredible that rational business men, such as were assembled during the hearings of the Lusk Investigation Committee at the City Hall, New York, in the latter part of May, should make statements indicating their belief that no sugar shortage whatever existed and that all this talk of a shortage was engineered by speculators. To try to convince such people is a waste of energy. Either they are too prejudiced to accept truthful statements regarding conditions or they are too ignorant to understand production and consumption statements collected by absolutely impartial agencies.

The statement of some of the big canners that they would discontinue canning and preserving, unless sugar prices are coming down, is about the silliest thing that has appeared yet, from the viewpoint of a feasible and effective result. To the American people, to the sugar refiners and dealers, such an action on the part of the canners would be the most welcome thing possible; housewives by the thousands would preserve and can their own fruits, while restaurants and bakeries would get more generous supplies, without bringing the price down a single cent. In one moment the candy, ice cream and preserves manufacturers claim that their consumption of sugar is only 8 per cent. of the total, and that their use of it has very little influence on the scarcity, and in the next they expect to paralyze and stupefy the whole sugar world by refraining from buying.

The 250,000,000 pounds mentioned in the statement of these canners represent 120,000 long tons, or less. The actual shortage existing at this moment in the United States is in excess of 500,000 long tons. Do these canners actually believe what they are saying, or is it merely an idle threat, made to impress the general public with their "holier-than-thou" attitude?

The writer, for the fifth or sixth time this year, calls the attention of the canners to the preserving qualities of clarified syrups made from either sugarcane, sorghum, barley, corn and even potatoes—although the latter do not enter into the practical calculation because of their high price at this time.

Efforts to Increase Supply Here.

Threats of "boycotting" the refiners or the wholesale sugar dealers are so silly that one need hardly consider them in a serious light. As long as the bulk of the people persist in consuming inordinately (as compared with the rest of the world) large quantities of sugar in their homes there is only one remedy for the situation, and that is to increase the supply. Capital is being invited to interest itself in the construction of beet and cane sugar factories within the United States, and there is every reason to believe that some of these projects will succeed.

There is little hope in increasing the production of the Philippines to a point where the crop can have a marked influence on the available sugar supply in America. Hawaii has practically reached the limit of its productive possibilities, because of its lack of additional acreage. Cuba and other West Indian islands not belonging to the United States must be humored, because they cannot be bullied or threatened in these days, and high prices will probably be the only way to humor them. We look elsewhere in the world for possible supplies and find none—except the price of sugar remains so high in this country that other countries, having learned to go without things, if necessary, will deprive themselves of their own needed sugar in order to get the enormous sums of money (boosted still higher by the stand of foreign exchange) waiting in New York for the provider of a million tons of sugar.

Cut down consumption by 30 per cent., and prices will drop next year! Keep up present consumption rate, and prices will remain high for ten years.